

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A surgical retractor comprising:

a frame member;

first and second retractor blades coupled to the frame member, said retractor blades opposing one another, each said retractor blade having an elongated vane and an arcuate throat configured to receive ribs in an incision in a patient's body, wherein at least one of the first and second retractor blades is movable with respect to the frame member along a first lateral axis to position the retractor blades toward or away from each other;

a foot coupled to one of the frame member and the first and second blades, the foot being located outside of a space defined between said first and second retractor blades, wherein the foot is adjustable in a vertical direction relative to the frame member and transverse to a direction in which the blades extend;

a locking mechanism for locking the foot relative to the frame member in a selected relative position along an axis which is transverse to the first axis; and

an actuator for moving said foot and one of said first and second retractor blades vertically with respect to the other of said first and second retractor blades, transverse to the direction of the first axis, said actuator interconnecting said foot and said one of said first and second retractor blades.

2. (Previously Presented) The retractor of claim 1, wherein the frame member comprises an elongated bar and the first and second retractor blades are respectively coupled to first and second arms coupled to the bar, one of said arms being movable with respect to the bar along the first axis.

3. (Previously Presented) The retractor of claim 1, wherein the second blade is rotatable about a second axis which is transverse to the first lateral axis, the foot being coupled to the second blade so that the foot and the second blade rotate together about the second axis.

4. (Withdrawn) A method of retracting a portion of a patient's body to carry out a surgical procedure, the method comprising the steps of:

positioning first and second retractor blades against opposite sides of an incision formed in a patient's body, the first and second retractor blades being coupled to a frame member so as to be

relatively movable toward or away from each other along a first axis;

coupling at least one foot to the frame member so as to be adjustable with respect to the frame member in a linear direction along an axis which is transverse to the first axis, the foot having a support surface configured to rest against a surface of the patient's body adjacent the incision;

adjusting the relative position of the foot with respect to the frame member along said linear direction and fixing the foot in a position at which the support surface of the foot rests against the surface of the patient's body adjacent the incision; and

imparting relative movement to the first and second blades to simultaneously move the blades apart along the first axis and lift one side of the incision with respect to the other side of the incision.

5. (Previously Presented) A rib retractor for spreading apart first and second ribs to create an opening in the patient's chest, comprising:

a frame;

a first blade coupled to the frame;

a second blade coupled to the frame, the second blade opposing the first blade and being movable toward and away from the first blade, the second blade having a rotatable connector which permits rotation of the second blade relative to the frame, said first and second blades each having an elongated vane and an arcuate throat configured to receive the first and second ribs therein, respectively;

an actuator for moving at least one of the first and second blades away from and toward the other of the first and second blades; and

a foot rotatably coupled, via a coupling, to at least one of the frame and the first and second blades, the foot having a support surface configured to engage an external surface of the patient's chest, outside of the opening, said coupling permitting rotation of said foot with respect to said at least one of the frame and first and second blades in one direction, and preventing rotation of said foot with respect to said at least one of said frame and the first and second blades in an opposite direction.

6. (Previously Presented) The rib retractor of claim 5, wherein:

the foot is linearly movable relative to the frame.

7. (Original) The rib retractor of claim 5, wherein:

the frame has a first arm and a second arm, the first blade being attached to the first arm and the second blade being attached to the second arm.

8. (Original) The rib retractor of claim 7, wherein:

the frame includes an elongate bar, the first and second arms being mounted to the bar, the second arm being movable along the elongate bar toward and away from the first arm along a first axis.

9. (Withdrawn) The rib retractor of claim 5, further comprising a locking mechanism which selectively permits and prevents rotation of the rotatable connector, the locking mechanism being movable between a locked position, in which rotation of the rotatable connector is prevented, and an unlocked position, in which rotation of the rotatable connector is permitted, the locking mechanism being in the locked position for spreading the first and second ribs apart without lifting the second rib, the locking mechanism being in the unlocked position to permit rotation of the rotatable connector for spreading the first and second ribs apart and lifting the second rib, wherein the locking mechanism may be moved from the locked position to the unlocked position without removing the first and second blades from the opening in the patient's chest.

10. (Withdrawn) A surgical retractor comprising:

a spreader member;

first and second opposing retractor blades coupled to the spreader member, wherein at least one of the first and second retractor blades is movable with respect to the spreader member along a first axis to position the retractor blades toward or away from each other, and wherein at least one of the first and second retractor blades is rotatably mounted to the spreader member;

a shoe coupled to one of the spreader member and the first and second blades, the shoe having a support surface configured to engage a surface of a patient's body, wherein the shoe is adjustable toward or away from the patient's body, relative to the spreader member, and transverse to said first axis;

an offset drive mechanism configured to drive the shoe vertically, to drive the support surface against the surface of the patient's body;

a locking member for locking the shoe and the spreader member in a selected relative position; and

a drive member for moving said at least one retractor blade with respect to the other retractor blade along the first axis.

11. (Withdrawn) The retractor of claim 10, wherein the spreader member comprises an elongated member and the first and second retractor blades are respectively coupled to first and second arms coupled to the elongated member, one of said arms being movable with respect to the elongated member along the first axis, the shoe being movable relative to the elongated member in a manner which is transverse to the first axis.

12. (Withdrawn) The retractor of claim 10, wherein the second blade is rotatable about a second axis which is transverse to the first axis, the shoe being coupled to the second blade so that the shoe and the second blade rotate together about the second axis.

13. (Withdrawn) A method of retracting a portion of a patient's body to carry out a surgical procedure, the method comprising steps of:

positioning first and second retractor blades against opposite sides of an incision formed in a patient's body, the first and second retractor blades being coupled to a spreader member so as to be relatively movable toward or away from each other along a first axis;

coupling at least one shoe to the spreader member so as to be adjustable with respect to the spreader member in a manner which is transverse to the first axis, the shoe having a support surface configured to rest against a surface of the patient's body adjacent the incision;

adjusting the relative position of the shoe with respect to the spreader member and fixing the shoe in a position at which the support surface of the shoe rests against the surface of the patient's body adjacent the incision; and

imparting relative movement to the first and second blades to simultaneously move the blades apart along the first axis and lift one side of the incision with respect to the other side of the incision.

14. (Previously Presented) A rib retractor for spreading apart first and second ribs to create an opening in a patient's chest, comprising:

an elongate member;

a first arm coupled to said elongate member;

a first blade extending from said first arm;

a drive member movably connected to said elongate member and translatable with respect to said elongate member;

a second arm rotatably coupled to said drive member;

a second blade opposing said first blade and coupled to said second arm;

said drive member configured to drive said second blade toward and away from said first blade, the second blade being rotatable, with said second arm, relative to the elongate member;

a shoe coupled to at least one of the said elongate member, first arm, second arm, first blade and second blade, the shoe having a support surface configured to engage the surface of the patient's chest when lifting the second rib with the second blade; and

a locking member which selectively permits and prevents rotation of said second arm and second blade relative to said elongated member, wherein when selected to permit rotation, said second arm and second blade rotate relative to said elongated member as said drive member translates said second arm and said second blade away from said first arm and said first blade, thereby also rotating said second arm and said second blade and lifting the second rib.

15. (Previously Presented) The rib retractor of claim 14, wherein said shoe is movable relative to said elongated member and said first and second arms, and said rib retractor further comprises a second locking member selectively permitting and preventing linear movement of the shoe relative to said elongated member and said first and second arms.

16. (Original) The rib retractor of claim 14, wherein:

the shoe is coupled to the second blade so that the shoe and the second blade are rotatable together.

17. (Canceled)

18. (Canceled)

19. (Withdrawn) The rib retractor of claim 14, wherein:

the locking member may be selected to prevent said rotation or to permit said rotation, without removing the first and second blades from the opening in the patient's chest.

20. (Withdrawn) A surgical retractor comprising:

a frame member;

first and second retractor blades coupled to the frame member, the retractor blades having retraction surfaces configured to engage an incision in a patient's body, wherein at least one of the first and second retractor blades is movable with respect to the frame member along a first axis to position the retractor blades toward or away from each other;

a foot coupled to one of the frame member and the first and second blades, the foot having a support surface configured to engage a surface of the patient's body, wherein the foot is adjustable in a linear direction relative to the frame member and transverse to said first axis;

a locking mechanism for locking the foot relative to and the frame member in a selected relative position along an axis which is transverse to the first axis; and

an actuator for moving said at least one retractor blade with respect to the other retractor blade along the first axis;

wherein the second blade is rotatable about a second axis which is transverse to the first axis, the foot being coupled to the second blade so that the foot and the second blade rotate together, relative to the frame member, about the second axis.

21. (Withdrawn) The retractor of claim 20, wherein the frame member comprises an elongated bar and the first and second retractor blades are respectively coupled to first and second arms coupled to the bar, one of said arms being movable with respect to the bar along the first axis, the foot being movable in the linear direction along said axis which is transverse to the first axis.

22. (Withdrawn) A surgical retractor comprising:

a spreader member;

first and second retractor blades coupled to the spreader member and opposing one another, wherein at least one of the first and second retractor blades is movable with respect to the spreader member along a first axis to position the retractor blades toward or away from each other;

a shoe coupled to one of the first and second blades, the shoe having a support surface configured to engage a surface of a patient's body, wherein the shoe is adjustable relative to the first or second blade to which said shoe is coupled in a direction which is transverse to said first axis;

a locking member for locking the shoe and the first or second blade to which said shoe is coupled, in a selected relative position; and

a drive member for moving said at least one retractor blade with respect to the other retractor blade along the first axis;

wherein the first or second blade to which said shoe is coupled is also rotatable about a second axis which is transverse to the first axis, and wherein said shoe and said first or second blade to which said shoe is coupled are driven in rotation in a vertical direction by forces generated by said drive member to move said at least one blade along the first axis in a horizontal direction.

23. (Withdrawn) The retractor of claim 22, wherein the spreader member comprises an elongated member and the first and second retractor blades are respectively coupled to first and second arms coupled to the elongated member, one of said arms being movable with respect to the elongated member along the first axis, the shoe being movable relative to the elongated member in a manner which is transverse to the first axis.

24. (Canceled)

25. (Canceled)

26. (Withdrawn) the retractor of claim 10, wherein said offset drive mechanism comprises an adjustable offset drive screw.

27. (New) The rib retractor of claim 5, wherein said coupling comprises a ratchet and pawl mechanism that permits said rotation in said one direction and prevents said rotation in said opposite direction.